



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/824,553	04/02/2001	Kirk Johnson	2762.2002-002	9887
21005	7590	04/03/2006	EXAMINER	
HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133			PATEL, JAY P	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 04/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/824,553

Applicant(s)

JOHNSON ET AL.

Examiner

Jay P. Patel

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 19-23, 26-34, 37 and 38 is/are rejected.
- 7) ☒ Claim(s) 13-18, 24, 25, 35 and 36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 26-27 and 37-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Albert et al. (U.S. Patent No. 6650641 B1).

3. In regards to claim 26, Albert discloses in figure 2 forwarding agents 231, 232, service managers 241, 242 and a group of servers 220. Furthermore, figure 11 illustrates how a forwarding agent and a service manager implement NAT between a client and a virtual machine (see figure 11 and column 28, lines 1-19). The forwarding agent and the service manager, anticipate an apparatus located beyond a network-translating device to determining a topology of a network.

In further regard to claims 26 and 37, the service manager and the forwarding agent, respectively contain processors 252 and 272. Both processors are respectively connected to a network interface. The network interface in the forwarding agent is used to send and receive packets to and from other devices on the network (see column 9, lines 61-64). The network interface in the service manager allows the service manager

Art Unit: 2616

to directly forward packets into the network from which it is providing a service (see column 10, lines 23-25). The processors anticipate a processor behind a network address translation device coupled to a network interface for initiating communications to a server beyond the network address translation device effecting network address translation.

In further regards to claims 26 and 37, the processors are contained within the service manager or the forwarding agent, which have addresses of their own and therefore, it is anticipated that the processor routing provides the actual network address of the processor in a message of the communications.

In regards to claims 27 and 38, the service manager and the forwarding agent, respectively contain processors 252 and 272. Both processors are respectively connected to a network interface. The network interface in the forwarding agent is used to send and receive packets to and from other devices on the network (see column 9, lines 61-64). The connection between the processor and the network interface, anticipate the said processor issuing communications in response to receiving a communication from behind the network address translation device.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-12, 19-23 and 28-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albert et al. (U.S. Patent No. 6650641 B1) further in view of Jindal et al. (U.S. Patent 6092178).

3. In regards to claims 1 and 29, Albert discloses in figure 2 forwarding agents 231, 232, service managers 241, 242 and a group of servers 220. Furthermore, figure 11 illustrates how a forwarding agent and a service manager implement NAT between a client and a virtual machine (see figure 11 and column 28, lines 1-19). The forwarding agent and the service manager are obvious over a translating device and the virtual machine is obvious over a server. The implementation of the NAT by the forwarding agent and a service manager is obvious over initiating communications, from a server behind the translating device, which effect the network address translation.

In further regards, Albert fails to particularly disclose monitoring the communication beyond the translation device to infer partitioning of servers behind the translation device into equivalent sets relative to the network topology induced by the network address translation. Jindal teaches the above-mentioned limitations in figure 2. Jindal describes that a load-balancing application may be exposed to requesting clients through a virtual server name; clients contact a DNS server to determine a server offering desired application. Jindal also mentions that it is well known in the art the DNS servers typically satisfy client request by resolving the virtual server name to an identity (i.e., a network address) of one network server within a pool of suitable servers (see column 7, lines 1-9). Jindal also mentions the a preferred server may be identified by the client on a regular or periodic basis, and may be the same as or different from the

Art Unit: 2616

one previously identified; thus, client requests are distributed among the participating servers and the application is load-balanced (see column 6, lines 36-43). This disclosure is obvious over monitoring the communications beyond a translating device to infer partitioning of servers. Jindal also discloses that based on the selected policy, each status object 200 may measure the response time of its associated server (110, 112, 114) or the application instance operating on the server to implement load balancing policies (See figure 2 and column 8, lines 30-46). This disclosure is obvious over partitioning servers behind the translating device into equivalence sets relative to the network topology induced by the network address translation.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the Network address translation (NAT) between a client and a virtual machine disclosed by Albert with the load balancing disclosed by Jindal. The advantage of doing so would be properly load balance client request based on NAT and load balancing policies. The motivation to combine comes from Jindal, which would be to enhance the functionality and flexibility of a network name service such as DNS (Domain Name Service).

In regards to claims 2 and 3, Albert discloses in figure 7, a wildcard affinity diagram. The wildcard affinity diagram includes a source IP address.

In regards to claim 4, the source IP address included in the wildcard affinity diagram also is obvious over a unique identification number in the message.

In regards to claim 5, Albert discloses in figure 13, a flowchart illustrating a process implemented on a forwarding agent for executing NAT as directed by a service

Art Unit: 2616

manger. In the affinity step 1306, the forwarding agent checks the action specified in the affinity. If the action specifies that the packet be to be forwarded to the service manger, then control is transferred to step 1308 and the packet is sent to a service manger. If the action specifies that the packet is to undergo Nat then control is transferred to step 1310 where the source IP address is changed (see figure 13, and column 29, lines 56-67 and column 30, line 1). The action that specifies whether the packet is to go NAT or forwarded to the service manager, is obvious over distinguishing between communications affected by and not affected by network address translation.

In regards to claim 6, Albert discloses in figure 13, a flowchart illustrating a process implemented on a forwarding agent for executing NAT as directed by a service manger. If the action specifies that the packet is to undergo Nat then control is transferred to step 1310 where the source IP address is changed (see figure 13, and column 29, lines 56-67 and column 30, line 1). The changing of the IP address is obvious over comparing an apparent source address of a message against an actual source address provided in the message.

In regards to claim 7, Albert discloses that to specify a single host the wildcard affinity include an IP address with a specific net mask. To specify the range of hosts (i.e. from 1.1.1.0 to 1.1.1.255), the wildcard affinity would include IP address of 1.1.1.0 with a net mask of 255.255.255.0 (see column 17, lines 47-54). The range of host with the IP address, anticipate, assessing a range of network addresses behind the translating device.

In regards to claim 8, from figure 2A, it is evident that the host whether they are clients or servers, are connected to the service managers and forward agents; therefore, the disclosure used with regards to claim 7, is also applicable to claim 8.

In regards to claims 9 and 10, figure 2A discloses a plurality of clients, forwarding agents, service managers and servers. The servers communicate with network through forwarding agents (see column 6, lines 46-53). The forward agents have knowledge of the network and since the servers communicate to the network via the forwarding agents, it is anticipated that passive and active clients are distinguished and that messages are directed from the passive to the active client.

In regards to claim 11, the service manager and the forwarding agent, respectively contain processors 252 and 272. Both processors are respectively connected to a network interface. The network interface in the forwarding agent is used to send and receive packets to and from other devices on the network (see column 9, lines 61-64). The network interface in the service manager allows the service manager to directly forward packets into the network from which it is providing a service (see column 10, lines 23-25). The respective processors and their connection to the network interface and its functions anticipate from a processor beyond the translating device, causing a message to a passive client to be redirected to an active client, the active client responsive communicating with the processor beyond the translating device.

In regards to claim 12, Albert discloses in figure 10F, a diagram illustration a NAT action segment (see figure 10F and column 24, lines 11-21). The NAT action segment is obvious over maintaining at least one translated address set.

4. In regards to claim 19, forwarding agents 231, 232, service managers 241, 242 and a group of servers 220. Furthermore, figure 11 illustrates how a forwarding agent and a service manager implement NAT between a client and a virtual machine (see figure 11 and column 28, lines 1-19). The forwarding agent and the service manager are obvious over a translating device and the virtual machine is obvious over a server. The implementation of the NAT by the forwarding agent and a service manager is obvious over a processor routine for receiving communications, from a server behind the translating device, which effect the network address translation.

In further regards, Albert fails to particularly disclose monitoring the communication beyond the translating device to infer partitioning of servers behind the translation device into equivalent sets relative to the network topology induced by the network address translation. Jindal teaches the above-mentioned limitations in figure 2. Jindal describes that a load-balancing application may be exposed to requesting clients through a virtual server name; clients contact a DNS server to determine a server offering desired application. Jindal also mentions that it is well known in the art the DNS servers typically satisfy client request by resolving the virtual server name to an identity (i.e., a network address) of one network server within a pool of suitable servers (see column 7, lines 1-9). Jindal also mentions the a preferred server may be identified by the client on a regular or periodic basis, and may be the same as or different from the one previously identified; thus, client requests are distributed among the participating servers and the application is load-balanced (see column 6, lines 36-43). This

Art Unit: 2616

disclosure is obvious over monitoring the communications beyond a translating device to infer partitioning of servers. Jindal also discloses that based on the selected policy, each status object 200 may measure the response time of its associated server (110, 112, 114) or the application instance operating on the server to implement load balancing policies (See figure 2 and column 8, lines 30-46). This disclosure is obvious over a processor routine for partitioning servers behind the translating device into equivalence sets relative to the network topology induced by the network address translation.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the Network address translation (NAT) between a client and a virtual machine disclosed by Albert with the load balancing disclosed by Jindal. The advantage of doing so would be properly load balance client request based on NAT and load balancing policies. The motivation to combine comes from Jindal, which would be to enhance the functionality and flexibility of a network name service such as DNS (Domain Name Service).

In regards to claim 20, Albert discloses in figure 7, a wildcard affinity diagram. The wildcard affinity diagram includes a source IP address.

In regards to claim 21, Albert discloses in figure 13, a flowchart illustrating a process implemented on a forwarding agent for executing NAT as directed by a service manger. If the action specifies that the packet is to undergo Nat then control is transferred to step 1310 where the source IP address is changed (see figure 13, and column 29, lines 56-67 and column 30, line 1). The changing of the IP address is

obvious over comparing an apparent source address of a message against an actual source address provided in the message.

In regards to claim 22, Albert discloses in figure 10F, a diagram illustration a NAT action segment (see figure 10F and column 24, lines 11-21). The NAT action segment is obvious over including at least one translated address set, the source address being stored in the translated address set.

In regards to claim 23, Albert discloses in figures 2B and 2C that the forwarding agent and the service manager respectively contain memories 254 and 274 connected to the respective processors (see figures 2B and 2C). The memories anticipate, the processor coupled to the memory, the processor routine storing a database of translated address sets in the memory. Furthermore, Albert discloses in figure 10F, a diagram illustration a NAT action segment (see figure 10F and column 24, lines 11-21), which contains the translated address set as, stated in regards to claim 22.

4. In regards to claim 28, forwarding agent and the service manager respectively contain memories 254 and 274 connected to the respective processors (see figures 2B and 2C). The memories are obvious over a computer usable medium for storing data.

In further regards to claim 28 and claim 30, Albert discloses in figure 2, forwarding agents 231, 232, service managers 241, 242 and a group of servers 220. Furthermore, figure 11 illustrates how a forwarding agent and a service manager implement NAT between a client and a virtual machine (see figure 11 and column 28, lines 1-19). The implementation of the NAT by the forwarding agent and a service

Art Unit: 2616

manger is obvious over receiving communications from a network device effecting network address translation.

In further regards, Albert fails to particularly disclose infer partitioning of servers behind the translation device into equivalent sets relative to the network topology induced by the network address translation. Jindal teaches the above-mentioned limitations in figure 2. Jindal describes that a load-balancing application may be exposed to requesting clients through a virtual server name; clients contact a DNS server to determine a server offering desired application. Jindal also mentions that it is well known in the art the DNS servers typically satisfy client request by resolving the virtual server name to an identity (i.e., a network address) of one network server within a pool of suitable servers (see column 7, lines 1-9). Jindal also mentions the a preferred server may be identified by the client on a regular or periodic basis, and may be the same as or different from the one previously identified; thus, client requests are distributed among the participating servers and the application is load-balanced (see column 6, lines 36-43). This disclosure is obvious over monitoring the communications beyond a translating device to infer partitioning of servers. Jindal also discloses that based on the selected policy, each status object 200 may measure the response time of its associated server (110, 112, 114) or the application instance operating on the server to implement load balancing policies (See figure 2 and column 8, lines 30-46). This disclosure is obvious over partitioning servers behind the translating device into equivalence sets relative to the network topology induced by the network address translation.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the Network address translation (NAT) between a client and a virtual machine disclosed by Albert with the load balancing disclosed by Jindal. The advantage of doing so would be properly load balance client request based on NAT and load balancing policies. The motivation to combine comes from Jindal, which would be to enhance the functionality and flexibility of a network name service such as DNS (Domain Name Service).

In regards to claim 31, Albert discloses in figure 7, a wildcard affinity diagram. The wildcard affinity diagram includes a source IP address.

In regards to claim 32, Albert discloses in figure 13, a flowchart illustrating a process implemented on a forwarding agent for executing NAT as directed by a service manger. If the action specifies that the packet is to undergo Nat then control is transferred to step 1310 where the source IP address is changed (see figure 13, and column 29, lines 56-67 and column 30, line 1). The changing of the IP address is obvious over comparing an apparent source address of a message against an actual source address provided in the message.

In regards to claim 33, Albert discloses in figure 10F, a diagram illustration a NAT action segment (see figure 10F and column 24, lines 11-21). The NAT action segment is obvious over including at least one translated address set, the source address being stored in the translated address set.

In regards to claim 34, Albert discloses in figures 2B and 2C that the forwarding agent and the service manager respectively contain memories 254 and 274 connected

Art Unit: 2616

to the respective processors (see figures 2B and 2C). The memories anticipate, storing a database of translated address sets. Furthermore, Albert discloses in figure 10F, a diagram illustration a NAT action segment (see figure 10F and column 24, lines 11-21), which contains the translated address set as, stated in regards to claim 33.

Response to Arguments

5. Applicant's arguments with respect to claims 1-12, 19-23, 26-34, 37 and 38 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Claims 13-18, 24-25 and 35-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jay P. Patel whose telephone number is (571) 272-3086. The examiner can normally be reached on M-F 9:00 am - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2616

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPP 3/27/06
Jay P. Patel
Assistant Examiner
Art Unit 2616



HASSAN RIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600